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ABSTRACT

The possibility that the benefits sought by radio listeners could be used to further define demographically homogeneous audiences for marketing purposes was investigated by surveying a segment of college undergraduate listeners. Twenty-five interviews were conducted to determine where, why, what time of day, and to what station an individual listened, as well as station and listener characteristics. The interview responses were then used to construct a questionnaire, which was administered to 100 undergraduate students. The respondents were clustered into four groups, according to preferences for news, commercials, station format, and type of music; and listener profiles were composed. The heaviest listening group preferred good music played by a friendly disc jockey. Members of this group viewed radio listening as a means of avoiding boredom, and preferred to listen with others. They were neutral about the information they received from the medium. Although the results did not support conclusively a significant relationship between cluster groups and the radio station listened to most often, the percentage was not so low as to preclude a relationship. The study also raised several issues for further investigation, such as the evidence that lighter listeners were more favorable to commercials, suggesting that sheer numbers of listeners and usage levels of radio may be poor indicators upon which to base an advertising campaign. (HTH)

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SEGMENTING DEMOGRAPHICALLY HOMOGENEOUS RADIO AUDIENCES: AN EXPLORATORY INVESTIGATION

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INTRODUCTION AND PURPOSE

Since Wendell Smith introduced the concept of market segmentation in 1956, many different bases for segmenting markets have been proposed (Green, 1977). However, defining portions of a market by isolating valid predictor variables has remained the objective of segmentation analysis. These variables should provide information for forming or adjusting marketing strategy. Hence, the choice of segmentation base should be guided by permissible courses of marketing strategy as well as the need to define market segments (Assael & Roscoe, 1976).

Dhalla and Mahatoo (1976) and Wind (1978) suggest that which segmentation variables are better depends upon the marketing decision for which segmentation is to be used. Specifically, Wind suggests benefits as one of the appropriate bases for general understanding of the market and for making advertising decisions. In either case, the benefits in question are those associated with the specific product for which marketing strategy is being formed or adjusted. But communication theory indicates that whether a consumer will be exposed to the advertisement or not may be influenced by the consumer's reasons for attending the medium used to carry the advertisement.

Although benefit segmentation analysis could be used to provide information about why consumers attend a particular medium, radio audiences are most frequently defined in terms of demographics. This is particularly true in the case of media

information services. At times these services may add usage level information to the demographics of age and sex. This type of information may be sufficient for the advertiser who wants to deliver his message to male or female consumers within a particular age group, but tells him little more. As Haley (1968) points out, demographic variables may be very helpful in separating users from non-users, although they are "typically less useful in distinguishing between the users of various brands" (at p. 31).

The inadaquacy of defining radio audiences by demographics alone becomes more apparent when one considers that many markets have more than one station of a particular type, e.g., more than one top-40 station. Top-40 is traditionally classified as a format appealing to a particular age group. However, what accounts for differences in listening preferences among that age group?

This study is a preliminary investigation of whether benefits sought from radio listening can be used to segment a demographically homogeneous group of radio listeners. The underlying assumption is simple--that audience members expect to receive benefits from listening to a particular radio station. As Haley says, "the benefits which people are seeking in consuming a product are the basic reasons for the existence of the true market segments" (at p. 31). Once these benefits are uncovered, it may follow that they provide information for advertising copy formation (Percy, 1976) and media selection.

THE STUDY

In theory benefit segmentation could be extended to any kind of medium. However radio was selected for analysis here for a number of reasons. Radio audiences are frequently described with particular emphasis upon age. And audiences are usually developed by a station, not a particular program. Hence one may speak of station loyalty. Because of these attributes radio offers a good opportunity to test the idea that benefit analysis can be used to further define demographically homogeneous audiences.

The study was begun with 25 in-depth interviews. The purpose of these interviews was to determine listening habits for the group to be studied--when they listened to the radio, why they listened, and what they expected to get from listening. The interviewer asked the respondent to recall all occasions when he/she listened to the radio during the day prior to the interview. For each of these occasions, the respondent was encouraged to relate the following information:

1. Where were you when you were listening to the radio?
2. What radio station were you listening to?
3. Why were you listening to the radio--what was the objective of your listening--what did you expect to get out of listening?
4. What were the characteristics of the station to which you listened? What did you like about it or not like about it?
5. What time of day were you listening? Were there any other people with you when you were listening? What is your relationship with the person--friend, roommate, etc.?

Because of the heavy radio listening habits of the group being studied, it was not necessary to go beyond the previous day's listening for questioning. During the in-depth interviews, no person was found who had not listened to the radio the day before. The various listening occasions, benefits, attributes, etc. derived from the interviews were used to design a questionnaire for determining more about the structural relationships among those elements in quantitative terms.

The sample used in the survey was a convenience sample of university students drawn from a large introductory mass communication course. While such a sample certainly has limitations, it is believed that the sample was sufficiently representative of the population for the exploratory nature of this investigation. Prior research with the class has shown that it is quite representative of the undergraduate university population Moreover, interest was in a relatively demographically homogeneous audience and the sample comprised of undergraduate students met this criterion. Each person in the sample was asked to complete the questionnaire. Completed and usable questionnaires resulted in an N of 100.

The first 22 statements of the survey were constructed to reflect the benefits expected from listening to the radio that were uncovered in the in-depth interviews. These statements were used in the grouping of data through cluster analysis. Cluster analysis was used because, as Green and Tull (1975) point out, it is preclassificatory in the sense that prior information has not been used to partition the objects. Yet, some

assumption has been made about the hetereogeneity of the data--that clusters exist among the subjects. Since no benefit segmentation research with radio audiences was found, there was no prior information available for use in partitioning subjects. Therefore, the objective was to structure the radio market with respect to the data themselves, allowing the audience to determine its own structure. This is one of the major benefits of cluster analysis in preliminary investigations (Peterson, 1974).

Ward's hierarchical grouping was used to cluster the data. This procedure is suggested for use in large scale ($N \geq 100$) where a precise optimal solution for a specified number of groups is not practical (Ward, 1963). In this investigation, it was necessary to take into account the similarity of group members along the dimensions of the 22 statements being examined for clustering. Ward's procedure allowed the groups to be formed based upon within group similarity while minimizing the loss of similarity when adding new subjects to the group. The loss of information that results from treating the scores in a group as a mean is reflected by Ward's objective function, the error sum of squares (ESS).

$$ESS = \sum_{i=1}^{n} x_i^2 - \frac{1}{n}\left(\sum_{i=1}^{n} x_i\right)^2$$

where x_i is the score of the i^{th} individual. The most desireable level of this objective function is its minimum value, 0.0. However, there is no set rule for selecting the number of groups based upon this objective function. The nature of the problem helps to determine the choice of the ob-

jective function.

RESULTS

The benefit statements as evaluated by the respondents on the questionnaire were subjected to Ward's hierarchical grouping. Four clusters containing 98 of the original 100 respondents were identified. These clusters emerged from the six group solution. The two groups with one respondent were dropped.

TABLE I

7 GROUP SOLUTION	6 GROUP SOLUTION	5 GROUP SOLUTION
G 1 (N=14)	G 1 (N=14)	G 1 (N=15)**
G 2 (N=33)	G 2 (N=43)*	G 2 (N=43)
G 4 (N=30)	G 4 (N=30)	G 4 (N=30)
G 5 (N=1)	G 5 (N=1)	G 10 (N=11)
G 6 (N=10)	G 10 (N=11)	G 73 (N=1)
G 10 (N=11)	G 73 (N=1)	ERROR 71.0005
G 73 (N=1)	ERROR = 66.5449	
ERROR = 65.0385		

4 GROUP SOLUTION
G 1 (N=15)
G 2 (N=43)
G 4 (N=30)
G 10 (N=12)***
ERROR 85.3196

*This group is result of combining groups 2 and 6 of the 7 group solution.

**This group is result of combining groups 1 and 5 of the 6 group solution

***This group is result of combining groups 10 and 73 of the 5 group solution.

The six group solution was chosen for two reasons. First, further collapsing into five groups added to the size of the largest group by only one respondent. The gain of one respondent to this group was not worth the corresponding gain in

the error term. Secondly, if the four group solution were used, the error term objective function would have taken a larger leap than at any other stage of the grouping procedure. Statements with significant differences in mean response across groups are presented in Table II. For a list of the statements, please see Appendix A.

Group X which makes up around ten per cent of the sample is not heavily involved in listening to the radio. Its members report liking to listen to the radio less than members of the other groups. It appears that to this group, the radio is a musical background--no intrusions of newscasts, weather, or disc jockeys are desired. However, like the other groups, Group X wants good music. Its most distinguishing characteristic is that it does not want any other programming besides music--<u>especially commercials</u>.

Group I's response to statement one would indicate that it enjoys listening to the radio more than the other groups; however, in reported time of listening, it ranks third. While Group X is not very favorable toward getting any type of news including commercials from the radio, Group I is a little more positive toward commercials and much more positive toward news, both campus and concert, and time and weather information. Although this group too wants good music from the radio, it seems that information is as important. Listening to the radio is not a totally passive experience, something to be done while going to sleep.

Group IV is passive in listening to the radio. It reports

TABLE I

MEAN RESPONSE TO STATEMENT BY RADIO AUDIENCE GROUPS

STATEMENT #	GROUP I NEWS GROUP n=14	GROUP II MUSIC/COMPANY n=43	GROUP IV PASSIVE LISTENER n=30	GROUP X DON'T INTERRUPT ME n=11	F Ratio of STATEMENT BY GROUP ONE WAY ANOVA
1	1.07	1.13	1.30	1.72	6.7103*
2	1.50	1.62	1.70	4.18	20.1148*
3	2.85	1.60	2.10	1.09	9.5718*
4	3.57	1.72	1.90	1.90	14.5541*
5	2.85	2.86	2.70	3.36	.8998
6	1.85	1.39	1.90	3.63	21.8191*
7	3.57	2.51	3.13	3.09	9.9613*
8	1.64	1.60	2.53	3.00	11.9325*
9	1.85	2.27	1.86	2.13	1.3894
10	2.21	2.51	3.00	2.72	1.7224
11	1.14	1.02	1.80	1.09	25.2403*
12	1.21	1.26	1.70	1.63	3.8645*
13	2.42	1.34	2.03	1.81	3.4920*
14	1.78	1.74	2.53	2.63	8.0814*
15	1.85	2.27	2.43	2.90	1.6617
16	2.78	2.58	2.66	1.90	1.3994
17	2.64	1.93	2.66	2.72	4.2317*
18	1.71	1.83	2.10	2.54	2.9316
19	1.85	2.09	2.93	3.27	8.3388*
20	1.57	1.13	1.66	1.27	5.5718*
21	1.14	1.58	2.53	2.72	15.6131*
22	3.64	2.53	3.33	3.00	2.9346

*p<.05 with N=98 d.f. 3,97 F=3.34

listening to the radio more than any other group except Group II. However, the group is seldom the most favorably or unfavorably disposed toward any of the dimensions of radio listening being examined. It enjoys listening to the radio, but is not too excited about the radio as a source of news or other information. It does not find it as important that a station operate 24 hours per day as the other groups. Looking at the group's preferring to listen to a stereo more than a radio; finding the radio more convenient than the stereo; and listening to radio more than any other group except Group II, it gives an indication of the group's make-up. It is passive--willing to sacrifice some of its preferences for convenience.

Group II is the heaviest listening group. It may be categorized as the good music/good company group of listeners. It wants good music from the radio and is the only group wanting a friendly disc jockey and favoring listening to the radio with others. The radio is seen as a means to avoid boredom, a source of company. It would like a 24-hour station, one that can be listened to when going to bed or when getting up in the morning. The group is fairly neutral about the information it may obtain from the radio.

Although one may construct interesting hypothetical listener profiles from each of the cluster's ratings of statements, these profiles do little toward segmenting the market unless they can be applied to actual listening habits. If the benefits sought from radio listening are valid predictor variables in the hypothetical listener form, then there should be a relation-

ship between the radio station listened to most often and the groups identified by the cluster analysis. A chi square test was done to see if the distribution for the two populations was the same. The results are presented in Table III.

TABLE III

COUNT ROW PCT COL PCT TOT PCT	STATION I	STATION II	STATION III	OTHER STATIONS*	ROW TOTAL
GROUP I	6 42.9 18.2 6.1	3 21.4 23.1 3.1	2 14.3 22.2 2.0	3 21.4 7.0 3.1	14 14.3
GROUP II	9 20.9 27.3 9.2	6 14.0 46.2 6.1	4 9.3 44.4 4.1	24 55.8 55.8 24.5	43 43.9
GROUP IV	15 50.0 45.5 15.3	3 10.0 23.1 3.1	1 3.3 11.1 1.0	11 36.7 25.6 11.2	
GROUP X	3 27.3 9.1 3.1	1 9.1 7.7 1.0	2 13.2 22.2 2.0	5 45.5 11.6 5.1	11 11.2
COLUMN TOTAL	33 33.7	13 13.3	9 9.2	43 43.9	98 100.0

CHI SQUARE = 11.88855 with 9 degrees of freedom significance .2197

*Other stations included four local stations with a total of five listeners and all other radio stations not in the metro area where the survey was done but reported as the station listened to most by the respondent.

SUMMARY AND IMPLICATIONS

It was disappointing that a more significant relationship between radio station listened to most and cluster group was not found. Yet, while a significance level of .2197 is not as high as one would require in hypotheses testing, it is not so low as to indicate no relationship between the two populations' distributions. Given the preliminary nature of this investigation, a .7803 probability that the distributions of the two populations are identical is not too disappointing. This result coupled with the variables isolated as distinguishing among radio listener clusters, indicates that benefit segmentation is a promising technique for predicting radio audiences within demographically homogeneous populations. This is particularly important for the advertiser because the benefits used as the bases for segmentation may provide important information for copy construction and media selection.

Aside from providing proof that demographically homogeneous audiences can be segmented further by benefit analysis, this study raises several issues for further investigation. A large number of respondents (38) reported listening to a radio station broadcasting from another area. This number apparently is not out of line as the radio stations of a nearby metro area advertise that they are able to deliver sizeable student audiences for their prospective advertisers. However, the question is why the students listen to those stations. An apparent answer is that the stations are in the students' hometowns. This pos-

sibility was checked and found not to be the case. Another possible answer is that the local audiences have been segmented by benefit. However, attainment of desired benefits from radio stations in the local radio market is impossible.

In Table III, one sees that over half of the persons in Group II listen to other stations. Thus, it is no surprise that the people in that group do not want commercial information and are fairly neutral about local news. Yet, one cannot be sure if these expressed preferences are due to the group's having tailored what it expects in terms of information from the radio to what it gets, or if the group simply listens to out of town stations because it does not care about local news or commercial information. In either case the local advertiser would find it difficult to reach this audience. However, the benefit profile may suggest that even though out of town radio stations can deliver a student audience, commercials are lost on students who listen to out of town stations and have a profile like Group II. Substitutability of radio stations (Mauser, 1976) is an area of research that might shed some light upon this question.

One should also note that the variables isolated as distinguishing among listener groups indicate that some groups of listeners are much more favorably disposed toward information than others. This is certainly no surprise; however, information here does not necessarily include commercial information. Moreover, when one's listening is explained in terms of expected benefits, heavy versus light listening patterns take on a perspective dif-

ferent from that traditional in media planning. The group profiles with the heaviest listening contain unfavorable evaluations of commercials as part of a station's offering. One of the lighter listening groups is the most favorable. If wanting commercials as part of the radio offering is related to one's hearing and remembering commercial messages, sheer numbers of listeners and usage levels of radio may be poor indicators upon which to base a media plan. Certainly more research is needed in this area.

Moreover, the data raise some questions as to whether radio is indeed as good a medium for reaching the full teen market as it is frequently assumed to be. True, all of the teens in the sample reported listening to the radio. However, those desiring commercial information as part of the benefits from radio are very very few. Reach, frequency and CPM figures computed on the basis of tune-ins alone might be quite misleading. The listener profiles isolated in this study indicate that all reach and frequency figures for actively involved listening (for commercials) may be drastically lower and consequently CPM figures much higher.

There is no question that more questions have been raised than answers given by this initial approach to benefit segmentation of radio audiences. Yet there should be little doubt that answers to these questions will provide information upon which better advertising decisions can be made.

APPENDIX A

Statements Used for Analysis

1. I like to listen to the radio.
2. I like to use my radio to wake myself up in the morning.
3. I prefer a radio station that has no commercials.
4. I would rather listen to records or tapes than to a radio.
5. I like a radio station that has frequent newscasts.
6. I like a radio station that plays the latest popular music.
7. I prefer to listen to the radio with other people.
8. I like a friendly sounding disc jockey.
9. I listen to the radio because it is more convenient for me than listening to records or tapes.
10. I would like a radio station to provide live coverage of University sports events.
11. I prefer radio stations that operate 24 hours a day.
12. I like a radio station that gives the time of day frequently
13. I dislike disc jockeys who talk over a song while it's being played.
14. I use my radio to keep me company.
15. Listening to the radio rather than to records or tapes offers more listening variety.
16. I don't like disc jockeys who sound excited.
17. Listening to the radio keeps me from being bored.
18. I like frequent weather information from a radio station.
19. I like to get local campus news on the radio.
20. The most important thing to me about a radio station is the KIND of music it plays.
21. I would like to get concert information for the (town) area from my radio.
22. I like to listen to my radio when going to sleep in the evening.

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